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MATERNAL AND CHILD HEALTH STATISTICS IN NORTH CAROLINA

1969-73 through 1979-83

This report, largely excerpted from the two-volume publication *Maternal and Child Health Statistics 1983*, was prepared by Dr. Michael J. Symons, Statistical Consultant, UNC School of Public Health, assisted by staff of the SCHS. The full publication, published intermittently by the Maternal and Child Care Section of the Division of Health Services, provides data for the state, various regional structures, counties and hospitals. Beginning with birth year 1984, the SCHS plans to publish state and county data on an annual basis; the 1984 report should be available in early fall.

North Carolina routinely collects information on maternal characteristics that are known risk factors for conditions associated with fetal, neonatal and postneonatal deaths. These risk factors are derived from information recorded on birth certificates and include young and old age, low educational level, out of wedlock marital status, high parity, a previous fetal death or a child born alive but who is now dead (1). Other factors which are not routinely collected but which are known to play important roles in birth outcome include genetic factors, environmental factors and infectious diseases. Exposures to various toxins in the atmosphere or food are specific examples. Therefore, many questions of interest to health officials concerned with fetal, neonatal and postneonatal mortality cannot be answered on the basis of routinely recorded birth and death data, but rather, require in-depth special studies.

However, many questions can be examined on the basis of these data. In particular, it is incumbent upon health officials to periodically examine the known recorded maternal characteristics that have traditionally been associated with morbid pregnancy outcomes in order to see if the risks are changing and, if so, in what direction, and to see if the distribution of risk characteristics among delivering women changes, and, if so, how. Also, questions regarding risk in various regions of the state may be answered from these data.

The trend analysis here has made use of the three previous publications which covered birth years 1969-73 (2), 1972-76 (3) and 1975-1979 (4) as well as the present analysis of the 1979-83 data. Overlapping 5-year periods in parts of the report were used to provide more stable rates. Although the use of overlapping years creates some correlation between rates, this should not affect the results of this report.

The following definitions apply to this study:

Live Birth — A live birth is the complete expulsion or extraction from its mother of a product of human conception, irrespective of the duration of pregnancy, which after such expulsion or extraction, breathes or shows any other evidence of life, whether or not the umbilical cord has been cut.

Fetal Death — A fetal death (stillbirth) is a death prior to complete expulsion or extraction from its mother of the product of conception. This report shows only registered fetal deaths of 20 or more weeks gestation that were not recorded as abortions.

Neonatal Death — A neonatal death is the death of a liveborn child under 28 days of age. This report shows only matched neonatal deaths. A matched neonatal death is one which is matched with a birth certificate.

Postneonatal Death - A postneonatal death is the death of a liveborn child of 28 days to one year of age. Only matched postneonatal deaths are displayed in this report. A matched postneonatal death is one which is matched with a birth certificate.

Representing deaths among calendar-year birth cohorts, death rates are calculated by the formulas below. Each of these rates is strictly a fraction multiplied by 1,000.

$$\text{Five-year fetal death rate} = \frac{\text{Five-year number of fetal deaths}}{\text{Five-year number of live births plus the five-year number of fetal deaths}} \times 1{,}000$$

$$\text{Five-year neonatal death rate} = \frac{\text{Five-year number of neonatal deaths}}{\text{Five-year number of live births}} \times 1{,}000$$

$$\text{Four-year postneonatal death rate} = \frac{\text{Four-year number of postneonatal deaths}}{\text{Four-year number of live births minus the four-year number of neonatal deaths}} \times 1{,}000$$

These rates are calculated for each of the following 16 groups of maternal characteristics (1):

Age (at last birthday)
- Under 18*
- 18-34 years
- 35+ years*

Education (grades completed)
- Under 9 years*
- 9-11 years*
- 12+ years

Out of Wedlock
- Yes*
- No

Parity
- 1
- 2-3
- 4+*

Previous Fetal Death (PFD)
- Yes*
- No

Previous Liveborn Now Dead (PLBND)
- Yes*
- No

One or More Risk Factors
- Yes*
- No

*Maternal risk group; see Reference 1.

Live Births

Trends in the 5-year numbers of live births are presented in Table A. The decline observed in the early seventies leveled off by 1975-79 (9% to 2% decrease) and now has been reversed (2% increase). The number of nonwhite births increased during the last two 5-year periods while the number of white births increased during the most recent period. During 1984, the number of white and nonwhite births increased 3.4 and 0.7 percent respectively; the number of white births (59,392) was the highest since 1972.

Table A

Trends in the Number of Live Births by Race
North Carolina 1969-73 through 1979-83

		1969-73	1972-76	1975-79	1979-83
White	Number	323,970	288,555	279,586	286,117
	% Change*		-11	-3	+2
Nonwhite	Number	138,517	131,748	132,599	135,660
	% Change*		-5	+1	+2
Total	Number	462,487	420,303	412,185	421,777
	% Change*		-9	-2	+2

*Percentage change in the number of live births from the previous time period.

Deliveries Within Risk Groups

'Deliveries' is defined as the combination of live births and the relatively few fetal deaths.

During 1979-83, a larger percentage of nonwhite than white infants continued to be premature (birthweight under 2500 grams) and, as shown in Table B, larger percentages of nonwhite than white deliveries again occurred to women who (a) were under 18 years of age, (b) were of low educational attainment, (c) were unmarried, (d) were of high parity, and (e) had experienced a previous liveborn now dead (PLBND).

In terms of changes in the percentages of deliveries reported, most of the eight maternal risk factors for fetal and infant death showed a decline in the 1979-83 period; this is seen for both whites and nonwhites. The two risk factors 'previous fetal death' and 'out of wedlock' involved increasing percentages for both races while the risk factor 'over age 34' involved an increase for whites only. As a result, the percentage of deliveries to women over 34 years of age is now higher among whites than among nonwhites.

The increasing percentage of deliveries to unmarried women may be explained by an increasing delivery rate among those women or by an increasing number of unmarried women. In North Carolina, it appears that unmarried white women 20 and older and unmarried nonwhite women 25 and older have recently experienced rising fertility (unpublished data).

TABLE B

Percentage of Deliveries Belonging to Each of the Risk Groups*

Observed as a Trend Over Time

	Whites				Nonwhites			
	1969-73	1972-76	1975-79	1979-83	1969-73	1972-76	1975-79	1979-83
Age <18	6.6	7.5	6.6	5.0	16.7	17.4	15.0	12.0
Age >34	4.8	4.0	3.7	4.0	5.6	4.3	3.8	3.7
Education <9	7.3	6.1	4.9	3.9	11.5	8.4	6.4	4.9
Education 9-11	27.6	26.9	24.4	20.6	41.5	40.3	36.6	31.3
Out of Wedlock	3.8	4.2	5.1	6.6	35.6	39.4	42.7	47.0
Parity 4+	15.3	12.1	10.4	9.3	24.5	19.4	18.0	17.1
PFD	14.4	14.7	15.6	16.2	12.7	13.7	15.9	16.8
PLBND	3.3	2.9	2.4	1.9	6.3	4.8	4.3	3.6
Total Deliveries (#)	328,161	291,859	282,247	288,502	141,688	134,364	134,877	137,629

*A risk group is comprised of all mothers possessing a particular maternal risk characteristic. There is no necessary relationship between a column total and 100%, since the risk groups are not necessarily exclusive or exhaustive.

Concerning continued increase in the percentage of deliveries to women who have experienced a previous fetal death, the erroneous inclusion of therapeutic abortions as 'previous fetal deaths' may be a factor, although instructions for completion of the birth certificate state explicitly that these events should not be included (5).

During 1984, the percentage of white live births classified as premature increased slightly, from 5.9 to 6.1. The nonwhite percentage declined by a comparable amount, from 12.1 to 11.7.

Fetal Mortality

A total of 4,354 resident fetal deaths occurred during 1979-83; 818 or 19 percent occurred during 1983. The five-year fetal death rate was 10.2 per 1,000 deliveries. This compares to rates of 11.8 for 1975-79 (4), 13.9 for 1972-76 (3), and 15.7 for 1969-73 (2). On an annual basis, the fetal death rates of whites and nonwhites increased temporarily in 1982 and 1983 respectively; the nonwhite rate then decreased significantly (18%) in 1984.

Analysis of the five-year data reveals that rates for all risk factors exceeded the overall rate of 10.2. The rate for premature deliveries was 83.4 while the rate for mature-weight deliveries was 2.9, suggesting nearly a thirtyfold mortality risk among premature infants. This ratio has increased steadily for whites and nonwhites over the four overlapping time periods studied, meaning a slightly greater percentage decrease in the fetal rate among mature infants.

With respect to maternal characteristics, each of the rates for nonwhites exceeded that for whites. Generally, the fetal death rates declined steadily over the time periods studied; the one exception was a 3.9 percent increase among 1979-83 deliveries to nonwhites with less than nine years of schooling (2-4).

The 1979-83 white fetal death rates for single and the four leading pairs of maternal risk factors are shown in Table C. The corresponding data for nonwhites are found in Table D.

As shown in Table C, the largest white fetal death rate occurred among mothers over age 34 and among those who were not married. Other high-risk categories were 'previous liveborn now dead' (PLBND) and 'previous fetal death' (PFD). Among the four leading pairs of risk factors, maternal age over 34 was a factor in three. The other involved mothers under age 18, but was based on only 43 live births and 1 fetal death.

'Age over 34' was also the leading risk factor for nonwhite fetal mortality, as shown in Table D. PFD and PLBND were the next highest categories. 'Age over 34' also appears in three of the four leading pairs of risk factors. 'Age under 18' and 'Para 4+' constitute the fourth leading pair, but the combination involved only 51 live births and 2 fetal deaths. Note that, for both whites and nonwhites, the four leading pairs include 'age over 34' in combination with 'out of wedlock.'

TABLE C

Fetal Mortality, Whites

North Carolina, 1979-83

Maternal Characteristics	Number of Live Births	Number of Fetal Deaths	Rate per 1,000 Deliveries*
Single			
Age >34	11,455	158	13.6
Out of Wedlock (OW)	18,836	247	12.9
Previous liveborn now dead (PLBND)	5,511	68	12.2
Previous fetal death (PFD)	46,128	542	11.6
Para 4+	26,504	286	10.7
Age <18	14,332	154	10.6
Educ. <9	11,028	114	10.2
Educ. 9-11	58,899	597	10.0
Pairs			
Age >34 and OW	361	10	27.0
Age>34 and Educ 9-11	1,500	36	23.4
Age <18 and PLBND	43	1	22.7
Age >34 and Educ <9	647	12	18.2
State Total	286,117	2,385	8.3

*Note that rates for pairs are based on relatively small numbers.

TABLE D

Fetal Mortality, Nonwhites

North Carolina, 1979-83

Maternal Characteristics	Number of Live Births	Number of Fetal Deaths	Rate per 1,000 Deliveries*
Single			
Age >34	4,923	128	25.3
Previous fetal death (PFD)	22,559	545	23.6
Previous liveborn now dead (PLBND)	4,790	107	21.9
Educ. <9	6,592	126	18.8
Para 4+	23,185	402	17.0
Age <18	16,185	268	16.3
Out of Wedlock (OW)	63,604	1,024	15.8
Educ. 9-11	42,440	612	14.2
Pairs			
Age >34 and PLBND	536	25	44.6
Age >34 and PFD	1,603	70	41.8
Age >34 and OW	889	36	38.9
Age <18 and Para 4+	51	2	37.7
State Total	135,660	1,969	14.3

*Note that rates for pairs are based on relatively small numbers.

Neonatal Mortality

A total of 3,964 neonatal deaths occurred to residents born during 1979-83; 728 or 18 percent were to 1983 births. The five-year death rate was 9.4 per 1,000 live births. This compares to rates of 11.5 for 1975-79 (4), 14.3 for 1972-76 (3), and 16.5 for 1969-73 (2). The Division of Health Services is currently conducting a follow-back study to determine causes of increased neonatal mortality among 1982 nonwhite births in some of the state's larger hospitals.

Examination of the five-year data reveals that rates for each of the risk factors exceeded the overall rate of 9.4, the same phenomenon as noted for fetal mortality. Premature infants experienced a rate of 90.8, which is forty-one times the rate of 2.2 for mature-weight infants. For all maternal characteristics, each of the rates for nonwhites exceeded that for whites. Generally, white and nonwhite rates were lower in 1979-83 than in the previous period, the one exception occurring among nonwhites who had experienced a previous liveborn now dead. That neonatal death rate of 40.5 per 1,000 live births compares to 34.6 during 1975-79 (4).

The 1979-83 white and nonwhite neonatal death rates for single and leading pairs of risk factors are given in Tables E and F, respectively. The highest single-factor white rate, 22.1, occurred among women who had experienced a previous liveborn now dead. At almost half of that, the next highest white rates occurred among women who were less than 18 years old, who were not married, or who had less than 9 years of schooling. Age under 18 also appeared in the two leading pairs, but these rates involved relatively few events. Women with a previous liveborn now dead appeared in the second, third, and fourth pairs with age under 18, out of wedlock, and education under 9 years, respectively.

Among nonwhite women, the two leading maternal risk factors for neonatal mortality were previous liveborn now dead (PLBND) and previous fetal death (PFD), as seen in Table F. The factor PLBND appeared in each of the four leading pairs of risk factors. The highest nonwhite neonatal death rate involved age under 18 in combination with PLBND. Note that this pair as well as out-of-wedlock in combination with PLBND are included in the four leading pairs of risk factors for both whites and nonwhites.

Postneonatal Mortality

A total of 1,403 postneonatal deaths occurred to residents born during 1979-82; 350 or 25 percent were to the 1982 birth cohort. The four-year death rate was 4.2 per 1,000 neonatal survivors; this compares to rates of 4.7 for 1975-78 (4), 5.3 for 1972-75 (3), and 6.0 for 1969-72 (2). On an annual basis, the postneonatal death rates of white and nonwhite infants born in 1982 both increased, and for nonwhites at least, the increase continued among the 1983 birth cohort.

TABLE E

Neonatal Mortality, Whites

North Carolina, 1979-83

Maternal Characteristics	Number of Live Births	Number of Neonatal Deaths	Rate per 1,000 Live Births*
Single			
Previous liveborn now dead (PLBND)	5,511	122	22.1
Age <18	14,332	186	13.0
Out of Wedlock (OW)	18,836	223	11.8
Educ. <9	11,028	126	11.4
Previous fetal death (PFD)	46,128	468	10.1
Para 4+	26,504	257	9.7
Educ. 9-11	58,899	548	9.3
Age >34	11,455	98	8.6
Pairs			
Age <18 and Para 4+	20	4	200.0
Age <18 and PLBND	43	2	46.5
OW and PLBND	239	8	33.5
Educ. <9 and PLBND	455	12	26.4
State Total	286,117	2,095	7.3

*Note that rates for pairs are based on relatively small numbers.

TABLE F

Neonatal Mortality, Nonwhites

North Carolina, 1979-83

Maternal Characteristics	Number of Live Births	Number of Neonatal Deaths	Rate per 1,000 Live Births*
Single			
Previous liveborn now dead (PLBND)	4,790	194	40.5
Previous fetal death (PFD)	22,559	496	22.0
Para 4+	23,185	408	17.6
Educ. <9	6,592	100	15.2
Age <18	16,185	236	14.6
Out of Wedlock (OW)	63,604	928	14.6
Educ. 9-11	42,440	591	13.9
Age >34	4,923	66	13.4
Pairs			
Age <18 and PLBND	95	6	63.2
PFD and PLBND	1,379	71	51.5
OW and PLBND	1,567	65	41.5
Para 4+ and PLBND	3,020	121	40.1
State Total	135,660	1,869	13.8

*Note that rates for pairs are based on relatively small numbers.

A review of the four-year postneonatal mortality data reveals that rates for seven of the eight maternal risk factors exceeded the overall rate of 4.2; age over 34 was the exception. The rate for premature infants was 17.3 while the rate for mature-weight infants was 3.1, suggesting nearly a sixfold postneonatal death risk for prematures. This ratio is slightly greater than that for 1975-78 and involves an increase from 62.4 to 69.0 in the rate for nonwhite infants weighing under 1500 grams. As described below, some white infants also experienced increased postneonatal mortality although the overall rate changed only slightly, from 3.3 to 3.2. As before, the postneonatal death rates of nonwhites exceeded those of whites at every level of birthweight and maternal characteristic.

The white and nonwhite postneonatal death rates for single and leading pairs of risk factors are given in Tables G and H. For white women, the highest rates occurred among those who (a) had less than nine years of schooling, (b) had experienced a previous liveborn now dead, (c) were under 18 years of age, and (d) were not married. These same four factors formed the four leading pairs of risk factors. Although the total postneonatal death rate for whites declined, rates for all eight maternal risk factors rose during 1979-82 (4). The most striking difference in the risk factors for white postneonatal mortality versus white fetal and neonatal mortality is that low education plays a much more dominant role among postneonatal deaths. This is consistent with findings for the previous periods of study (2-4).

For nonwhites, the two categories of low education, namely under 9 years and 9-11 years, were the leading risk factors, and as for whites, low educational attainment figured much more prominently in postneonatal mortality than in fetal and neonatal mortality. Although age under 18 in combination with previous fetal death formed the leading pair of nonwhite risk factors, it is seen that education under 9 years and previous liveborn now dead figures prominently in postneonatal loss among both whites and nonwhites.

Relative Trends in Mortality Rates

The percentage changes in North Carolina's white and nonwhite fetal, neonatal, and postneonatal death rates from the first observation period (1969-73) to the present (1979-83) are depicted graphically in the rates of Figures A, B, and C. Rates are shown separately for mothers who had one or more of the eight risk factors; this group is termed the 'Risk Group.'

For these graphs, a logarithmic scale was chosen for the vertical axis so that equal percentage changes in the rates are shown as equal distances on the vertical scale. The figures are not presented in tabular form since the rates are based on large numbers of events, the smallest being 450 postneonatal deaths among the white risk group during 1975-78 (4).

TABLE G

Postneonatal Mortality, Whites

North Carolina, 1979-82

Maternal Characteristics	Number of Live Births	Number of Post-Neonatal Deaths	Rate per 1,000 Neonatal Survivors*
Single			
Educ. <9	9,100	83	9.2
Previous liveborn now dead (PLBND)	4,539	28	6.3
Age <18	11,785	73	6.3
Out of Wedlock (OW)	14,160	88	6.1
Educ. 9-11	48,160	251	5.3
Para 4+	21,287	101	4.8
Previous fetal death (PFD)	36,767	136	3.7
Age >34	8,784	26	3.0
Pairs			
OW and PLBND	239	4	21.4
Educ. <9 and OW	2,134	19	11.5
Educ. <9 and PLBND	455	4	10.6
Age <18 and Educ. <9	2,903	23	9.7
State Total	228,671	730	3.2

*Note that rates for pairs are based on relatively small numbers.

TABLE H

Postneonatal Mortality, Nonwhites

North Carolina, 1979-82

Maternal Characteristics	Number of Live Births	Number of Post-Neonatal Deaths	Rate per 1,000 Neonatal Survivors*
Single			
Educ. <9	5,472	51	9.5
Educ. 9-11	34,814	317	9.2
Previous liveborn now dead (PLBND)	3,992	34	8.9
Age <18	13,325	110	8.4
Out of Wedlock (OW)	50,525	373	7.5
Para 4+	18,832	139	7.4
Previous fetal death (PFD)	18,214	110	6.2
Age >34	3,923	15	3.9
Pairs			
Age <18 and PFD	724	11	17.8
Educ. <9 and PLBND	430	5	13.7
Age <18 and PLBND	95	1	12.5
OW and Para 4+	6,472	61	12.2
State Total	109,252	673	6.2

*Note that rates for pairs are based on relatively small numbers.

As shown by Figure A, fetal death rates have declined similarly for whites and nonwhites, both in total and among high-risk mothers. Hence, during 1979-83, nonwhite rates remained much higher than those for whites, and rates for the risk groups remained higher than those for all mothers, especially among whites.

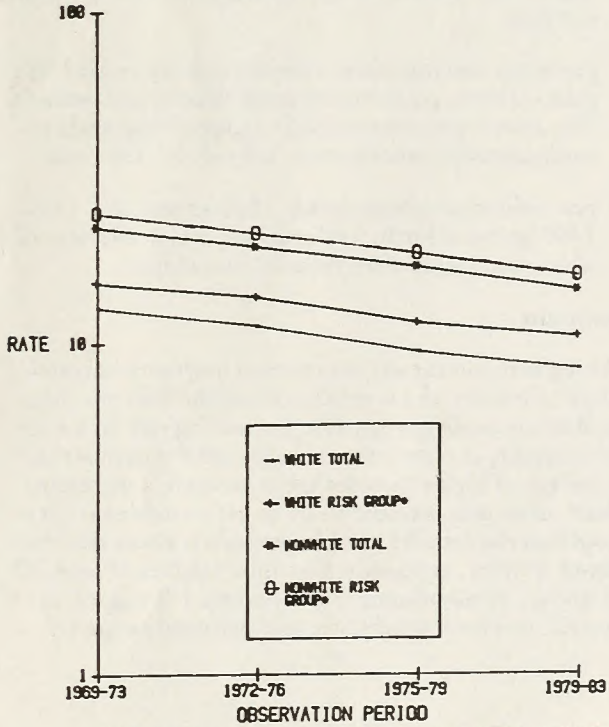
In contrast, Figure B reveals greater decreases in neonatal death rates among whites than among nonwhites, but as observed above, both white and nonwhite total mothers and risk-group mothers experienced similar declines.

The most striking differences in mortality trends are seen in the postneonatal death rates of Figure C. Both in total and among risk-group mothers, nonwhites experienced declines of about 44 percent between the first and last observation periods; this compares to 18 percent among total whites and 13 percent among risk-group whites. Although the rates for whites may be approaching some threshold level beyond which reductions will be difficult to achieve, the 1979-82 rise among white risk-group mothers is a concern. That increase involved white mothers in all eight risk categories, especially those over age 34 and those experiencing a fourth or higher-order birth.

NOTE: In Figures A, B, and C, the vertical axis uses a logarithmic scale so that equal percentage changes in the rates are shown as equal distances on the vertical scale.

FIGURE A

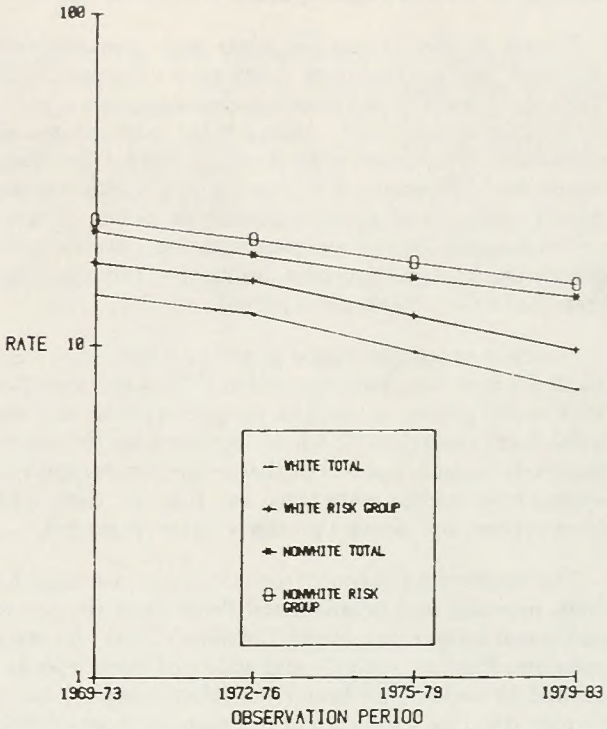
NORTH CAROLINA
FETAL DEATH RATES
1969-73 - 1979-83



*RISK GROUP IS COMPOSED OF MOTHERS HAVING ONE OR MORE OF THE EIGHT MATERNAL RISK FACTORS.

FIGURE B

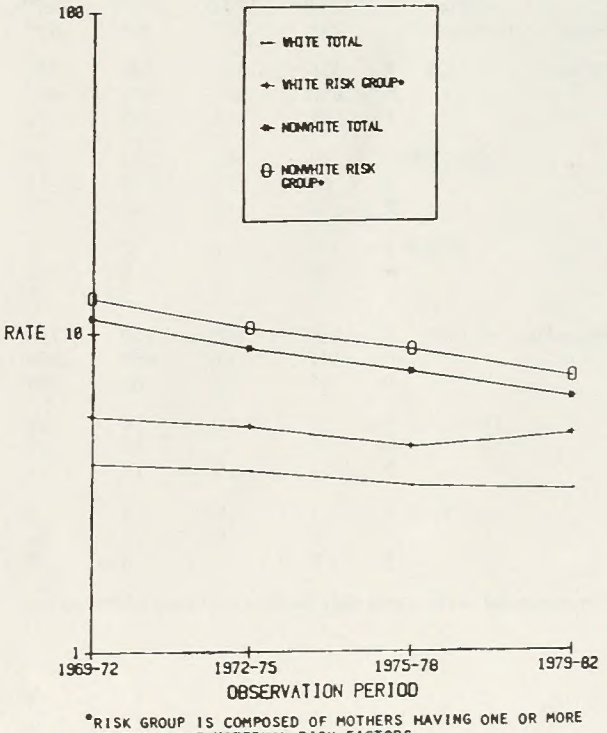
NORTH CAROLINA
NEONATAL DEATH RATES
1969-73 - 1979-83



*RISK GROUP IS COMPOSED OF MOTHERS HAVING ONE OR MORE OF THE EIGHT MATERNAL RISK FACTORS.

FIGURE C

NORTH CAROLINA
POSTNEONATAL DEATH RATES
1969-72 - 1979-82



*RISK GROUP IS COMPOSED OF MOTHERS HAVING ONE OR MORE OF THE EIGHT MATERNAL RISK FACTORS.

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Trends in Birthweight-specific Mortality Rates

Trends in weight-specific white and nonwhite fetal, neonatal, and postneonatal death rates are presented in Table I. Generally, the rates are declining, but one very interesting exception is observed: for both whites and nonwhites, the postneonatal death rate of infants weighing under 1500 grams is increasing. A possible explanation for this observation is that better perinatal care is prolonging the lives of low-weight infants, as reflected in decreasing fetal and neonatal death rates, more of whom then die in the postneonatal period.

Another exception to the general picture depicted in Table I is that, for deliveries under 1500 grams and those 1500-2499 grams, nonwhites have lower fetal and neonatal death rates than do whites. Reasons for this are not definitely known, but it is probable that low-weight nonwhites have higher gestational age than do their white counterparts and hence a greater survival potential.

The birthweight-specific trends in white and nonwhite fetal, neonatal and postneonatal death rates do provide additional insight into North Carolina's infant mortality patterns. Further analysis and study of these trends is needed to understand better the relative importance of factors affecting survival and the avenues most effective for health care delivery.

TABLE I

Fetal (F), Neonatal (N) and Postneonatal (P) Mortality Rates by Race and Birthweight North Carolina 1969-73 through 1979-83

Race	Birthweight (Grams)		1969-73*	1972-76*	1975-79*	1979-83*
White	< 1500	F	336	316	304	278
		N	650	604	517	410
		P	37	45	55	52
	1500-2499	F	48	41	32	31
		N	64	55	37	24
		P	12	14	10	10
	2500+	F	5	4	3	3
		N	4	3	3	2
		P	3	3	3	3
Nonwhite	< 1500	F	310	292	278	253
		N	571	527	453	399
		P	55	53	62	69
	1500-2499	F	45	40	34	27
		N	39	30	22	15
		P	21	19	15	13
	2500+	F	7	6	4	3
		N	5	4	3	2
		P	9	7	6	5

*Postneonatal deaths cover only the first four years of the period.

Major Findings

- For both whites and nonwhites, the ***percentage*** of deliveries to women in each risk category has declined except that the percentages to unmarried women and women who had experienced a previous fetal death have increased. The same trends apply to ***numbers*** of deliveries. Among whites, the number and percentage of deliveries to women over age 34 have also recently increased.
- Individually and in combination with other risk factors, maternal ***age over 34*** is a leading risk factor for ***fetal*** mortality among whites and nonwhites.
- The major risk factor for white and nonwhite ***neonatal*** mortality is ***previous liveborn now dead***.
- The major risk factor for white and nonwhite ***postneonatal*** mortality is ***low education*** of the mother.
- Recent decreases in fetal death rates have been about the same for both races, but declines in neonatal mortality have favored whites while declines in postneonatal mortality have favored nonwhites.
- For both races, reductions in fetal and neonatal mortality have been approximately the same for mothers with risk factors as for total mothers. In contrast, white mothers with risk factors experienced increased postneonatal mortality during 1979-82.
- In total, all three mortality rates continue to be higher for nonwhites than for whites, and for each race, higher for mothers with risk factors than for total mothers.
- For white and nonwhite infants weighing under 1500 grams at birth, postneonatal death rates have increased. This trend is accompanied by reduced fetal and neonatal mortality among these low-weight deliveries.
- For infants weighing under 1500 grams and 1500-2499 grams at birth, fetal and neonatal death rates of whites are higher than those of nonwhites.

Comment

Along with increased postneonatal mortality in certain groups of infants, the combination of the first two findings above is cause for concern; the leading risk factor for fetal mortality is older maternal age, and the number and percentage of births to older white women is increasing. Indeed, in an independent study as yet unpublished, it is shown that the fertility of older women is rising and that delayed fertility, especially first-time fertility at ages 30 and above, is associated with increased levels of prematurity, newborn morbidity, and perinatal mortality.

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